

ABSTRACT OF THE DISCLOSURE

To accurately measure the position and posture of a stage apparatus used in an exposure apparatus or the like, the Z position and displacement of a top stage (27) are measured using as a reference a lens barrel support (35) independently of the top stage in terms of vibrations by an interferometer system which includes a projection optical system (34) for projecting a pattern formed on a master onto a substrate, stages (27, 31, 40) capable of moving with respect to the projection optical system (34) while holding the substrate or master, and a lens barrel support (35) that supports the projection optical system (34), and which uses a Z measuring mirror (30) that is arranged on a Y stage (31) and has a reflecting surface almost parallel to the XY plane, and a Z interferometer (25) arranged on the Y stage (31).